

Patent Claims

1. Duplexer,

- comprising an Rx filter, a Tx filter and an isolation line and/or delay line,
- wherein both filters are designed as MW resonators in the form of continuous, internally metallized holes in a shared ceramic body,
- whereby the ceramic body has a largely closed exterior metallization except for one end face and recesses on the bottom side,
- wherein the output of the Rx filter situated on the bottom is connected to a balun, which is implemented in an LTCC ceramic and is situated underneath the Rx filter, whereby the ceramic body has a smaller height than the Tx filter in the area of the Rx filter.

15 2. Duplexer according to Claim 1,

wherein the ceramic body has a recess underneath the Rx filter and the balun is arranged in the recess.

3. Duplexer according to Claim 2,

20 wherein the height of the recess approximately corresponds to the height of the balun so that the duplexer together with the balun has a uniform overall height.

4. Duplexer according to any one of Claims 2 or 3,

wherein the recess with the balun is situated in the area of the non-metallized end face of the ceramic body, and the Rx filter has the original overall height, corresponding to that of the Tx filter, on the side opposite this end face.

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5. Duplexer according to any one of Claims 1 through 4,

wherein an internally metallized hole which is electrically connected at one end to the exterior metallization and at the other end to an antenna terminal, is situated between the Rx filter and the Tx filter.

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6. Duplexer according to any one of Claims 1 through 5,

wherein each filter has two MW resonators with at least one decoupling resonator in between.

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7. Duplexer according to any one of Claims 1 through 6,

wherein the balun is soldered to the ceramic body and is electrically connected to at least one of the terminals of the duplexer.

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8. Duplexer according to any one of Claims 1 through 6,

wherein the balun is glued to the ceramic body using an electrically conducting adhesive so that it is electrically connected to at least one of the terminals of the duplexer.

9. Duplexer according to any one of Claims 1 through 8,
wherein the height of the balun is 0.3 to 0.4 mm, which corresponds approximately to the
height difference between the Rx filter and the Tx filter.

5 10. Duplexer according to any one of Claims 1 through 9,
wherein the edge between the end face and the bottom side of the duplexer has a step or a
beveled edge and wherein the terminal faces for the duplexer extend over the step or
beveled edge.